| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/805,748 | 03/13/2001 | Srinivas Gutta | US 010064 | 2712 |

| 24737 | 7590 | 11/03/2004 |
|---|---|---|

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

| EXAMINER |
|---|
| FLETCHER, JAMES A |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2616 | |

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
| :--- | :--- | :--- |
| **Office Action Summary** | 09/805,748 | GUTTA ET AL. |
| | **Examiner** | **Art Unit** |
| | James A. Fletcher | 2616 |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 March 2001*.

2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-60* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *3/13/1 and 1/23/3*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

## DETAILED ACTION

1.      Please include the new Art Unit 2616 in the caption or heading of any written or

facsimile communication submitted after this Office Action because the examiner, who

was assigned to Art Unit 2615, will be assigned to new Art Unit 2616.  Your cooperation

in this matter will assist in the timely processing of the submission and is appreciated by

the Office.

### *Claim Rejections - 35 USC § 103*

2.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.      Claims 1-6, 8-36, and 38-0 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yeo et al (6,219,837), in further view of Dimitrova et al (6,137,544).

**Regarding claims 1 and 31,** Yeo et al disclose a system and method for

processing video source frames comprising:

- a video frame extraction algorithm that dynamically and non-contiguously

    extracts key frames from the video source frames during execution of the

    video source frames (Col 4, lines 67-68 "A candidate summary frame is taken

    from the video signal");

- a processor that executes the video source frames and executes the video

    source frame extraction algorithm (Col 4, lines 15-16 "the processing of video

    and embedding of summary is done on a server");

- a video input device that receives the video source frames from a video source, wherein the video input device is coupled to the processor (Fig 4, showing "Video Signal" 403 directly coupled to "Processing of Video Signal" 404");

- wherein a first memory of the memory structure stores the extracted key frames (Col 5, lines 1-2 "A fixed memory buffer in a computing device");

- Yeo et al disclose a memory of the processor (Col 5, lines 1-2 "A fixed memory buffer in a computing device"), but do not specifically disclose an algorithm stored in that memory.

Dimitrova et al teach an algorithm stored in the memory structure coupled to the processor. (Fig. 2A, item 234 "Frame Memory" is shown coupled to item 230 "Significant Scene Processor") wherein the memory structure stores the video frame extraction algorithm (The processor is shown to be an Intel Pentium chip in Col 4, lines 29-30, and such chips are known to require programs stored in memory to function, the examiner determines that the limitation is met by the Dimitrova et al reference).

Algorithms for processing various kinds of data by processors are well known, widely used and commercially available, and provide an inexpensive way to provide a functionality of key frame extraction to a processor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al to specify a key frame extraction algorithm stored in the memory coupled to the processor.

- Yeo et al disclose a way to terminate key frame viewing (Col 3, lines 44-46 "the viewer 10 may select to delete the summary frames"), but do not specifically disclose terminating extraction of key frames.

Dimitrova et al teach a terminating mechanism that terminates extraction of the key frames prior to completion of execution of the video source frames (Col 3, lines 39-42 "if the tape, or file, is not completely recorded on at one time, a partially created video index could be saved on the tape, file, etc.").

As suggested by Yeo et al and taught by Dimitrova et al, when the key frames are no longer of interest to the viewer, their extraction and display are no longer necessary, and stopping their extraction and display would free processor time for other tasks that may have more value to the viewer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al to terminate key frame extraction before all frames have been executed.

**Regarding claims 2, 4, 5, 32, 34, and 35**, Yeo et al suggest a memory for source frames (Col 5, lines 1-2 "A fixed memory buffer in a computing device can be maintained to store the selected frames", but does not specifically disclose either a temporary or permanent memory, or what form a permanent memory might take.

Dimitrova et al teach a system and method for processing video source frames wherein the first memory includes a temporary or permanent memory, and includes forms of those memories (Col 4, lines 35-38 "an index memory, such as, for example, a

hard disk, file, tape, DVD, or other storage medium" The examiner notes that such

media are well known to those of ordinary skill in the art to be useful for both temporary

and permanent storage of data.).

As suggested by Yeo et al and taught by Dimitrova et al, both permanent and

temporary memory devices and methods are well known, commercially available, and

widely used for storage of image data, and allow images to be stored quickly and

cheaply.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Yeo et al to specify temporary and permanent memory

devices.

**Regarding claims 3 and 33**, Yeo et al suggest but do not specifically disclose a

system and method for processing video source frames wherein the temporary memory

includes a random access memory (RAM) (Col 5, lines 1-2 "A fixed memory buffer in a

computing device can be maintained to store the selected frames").

The examiner takes official notice that a random access memory is a well known,

widely used and commercially available means of temporary storage of data, and would

provide an inexpensive and easily understood means of storing such data.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Martino et al to specify a random access memory for

temporary storage of data.

**Regarding claims 6 and 36**, Yeo et al suggest indicating a key frame at the end

of extraction of key frames (Col 5, lines 4-5 "In a live-broadcast, summary frames of

past content can be selected." The most recent key frame is indicated by its position on

the screen as shown in Figs 8A, 8B, and 8C).

Dimitrova et al teach a system and method for processing video source frames

comprising a recording mechanism that records in the first memory an indication of a

video source frame being executed when the extraction of key frames is terminated (Fig

1 illustrates a flow chart that indicates the recording of keyframe data to a tape memory

as a final step in the acquisition of keyframe data).

As suggested by Yeo et al and taught by Dimitrova et al, indicating the final

frame in a set of extracted key frames would provide the user with information regarding

how recently the key frame review data can be accesses, further enhancing the use of

the key frame extraction and display system to him or her.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Yeo et al to include an indication of the last extracted key

frame.

**Regarding claims 8 and 38**, Yeo et al disclose a way to terminate key frame

viewing (Col 3, lines 44-46 "the viewer 10 may select to delete the summary frames"),

but do not specifically disclose terminating extraction of key frames.

Dimitrova et al disclose a system and method for processing video source frames

wherein the terminating is triggered by action of a user-controlled device (Col 13, lines

44-46 "An additional feature would allow a user to stop the playing of a video tape at

any point and access the visual index for that video tape").

As taught by Dimitrova et al, when the key frames are no longer of interest to the viewer, their extraction and display are no longer necessary, and stopping their extraction and display would free processor time for other tasks that may have more value to the viewer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al to terminate key frame extraction before all frames have been executed.

**Regarding claims 9 and 39**, Yeo et al disclose a system and method for processing video source frames wherein the user-controlled device includes a user input that is coupled to the processor (Col 3, lines 44-46 "the viewer 10 may select to delete the summary frames").

**Regarding claims 10 and 40**, Yeo et al disclose a system and method for terminating the viewing of key frames at a time when a predetermined condition has occurred (Col 3, lines 56-48 "the summary screens may automatically disappear from the screen if the channel has not been changed for some time"), but do not specifically state that the extraction terminates at the occurrence of a predetermined condition.

Dimitrova et al teach terminating the processing of video source frames when a predetermined condition has occurred (Col 3, lines 40-43 "if the tape, or file, is not completely recorded on at one time, a partially created video index could be saved on the tape, file, etc. or could be saved in a tape memory for later additions").

As suggested by Yeo et al and taught by Dimitrova et al, when the key frames are no longer of interest to the viewer, their extraction and display are no longer

necessary, and stopping their extraction and display would free processor time for other tasks that may have more value to the viewer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al to terminate key frame extraction before all frames have been executed.

**Regarding claims 11-12 and 41-42,** Yeo et al disclose a system and method for terminating the viewing of key frames at after a predetermined time has passed (Col 3, lines 56-48 "the summary screens may automatically disappear from the screen if the channel has not been changed for some time"), but do not specifically state if that predetermined time is a passage of clock time, a given number of frames being executed, or a given fraction of the program being observed.

The examiner takes official notice that a predetermined fraction of the video source frames, and a predetermined number of video source frames are both well known and widely used techniques of determining the passage of time in an audio/visual program.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al to indicate the predetermined condition by a percentage of the incoming program or a count of incoming frames.

**Regarding claims 13 and 43,** Yeo et al disclose a system and method for indicating the predetermined condition as the elapsing of a predetermined time duration from initiation of executing the video source frames (Col 3, lines 56-48 "the summary

screens may automatically disappear from the screen if the channel has not been changed for some time").

**Regarding claims 14 and 44**, Yeo et al disclose a system and method for processing video source frames comprising an output display through which a user may review the extracted key frames (Col 3, lines 25-26 "summary frames…appear in a small window as shown on the left side of the screen 18"), wherein the output display is coupled to the processor (Fig 4 shows the displays 412 and 410 coupled to the processor through the communication channel 402).

**Regarding claims 15 and 45**, Dimitrova et al disclose a system and method for processing video source frames wherein the output display includes a television screen or a computer monitor (Fig 4 shows the output display as being available on either a television screen 412 or a computer monitor 410).

**Regarding claims 16-18 and 46-48**, Yeo et al disclose a system and method for processing video source frames wherein the system permits review of the key frames prior to, when, or after completion of execution of the video source frames, or before the terminating mechanism terminates extracting the key frames (Col 3, lines 25-26 "These summary frames…appear in a small window as shown").

**Regarding claims 19 and 49**, Yeo et al disclose a system and method for processing video source frames wherein the system permits review of the key frames upon or after completion of execution of the video source frames (Col 3, lines 24-27 "summary frames are selected from the video prior to broadcast. These summary

frames are embedded in the broadcast and appear in a small window as shown on the left side of the screen 18").

**Regarding claims 20, 21, 50, and 51**, Yeo et al disclose a system and method for processing video source frames comprising an erasing mechanism that erases the key frames from the first memory at or after completion of review of the key frames by the user, and that action is triggered by action of the user (Col 3, lines 44-46 "the viewer 10 may select to delete the summary frames from the screen if they wish").

**Regarding claims 22 and 52**, Yeo et al disclose a system and method for processing video source frames comprising a user input device for user manipulation (Col 3, lines 37-42 "A short video segment may be associated with each shot such that when the shot is selected...the past video segment is played in a larger window on the screen").

**Regarding claims 23 and 53**, Yeo et al disclose a system and method for processing video source frames wherein the erasing mechanism is triggered when a predetermined condition has occurred (Col 6, lines 6-9 "At block 33, $S_{sj}$ is removed from S is $S_{sj}$ is older than some time t. This ensures that summary frames displayed on the screen are not too old to be relevant").

**Regarding claims 24 and 54**, Yeo et al disclose a system and method for processing video source frames wherein the erasing mechanism is triggered when a predetermined condition has occurred, if that condition includes completion of execution of the video source frames (Col 2, lines 17-18 "the summary frames may also be embedded in prerecorded media" and Col 6, lines 6-9 "At block 33, $S_{sj}$ is removed from

S is S$_{sj}$ is older than some time t.  This ensures that summary frames displayed on the screen are not too old to be relevant").

**Regarding claims 25 and 55**, Yeo et al disclose a system and method for processing video source frames wherein the predetermined condition includes an elapse of a predetermined amount of time following the review of the key frames (Col 3, lines 46-48 "the summary screens may automatically disappear from the screen if the channel has not been changed for some time").

**Regarding claims 26 and 56**, Yeo et al disclose a system and method for processing video source frames comprising a second memory of the memory structure and a transferring mechanism, wherein the transferring mechanism transfers the key frames from the first memory to the second memory (Fig. 4 illustrates the embedding of frames into the video signal from the server, and that signal being transferred to users' computers or set-top boxes), and wherein the second memory includes a removable memory (Col 2, lines 18-20 "the summary frames may also be embedded in prerecorded media, such as, for example, video tape or video disks").

**Regarding claims 27 and 57**, Yeo et al suggest a system and method for processing video source frames comprising key frames in a first memory (Col 5, lines 1-2 "A fixed memory buffer in a computing device can be maintained to store the selected frames") and a mechanism to transfer the key frames from the first memory to the second memory (Col 2, lines 18-20 "the summary frames may also be embedded in prerecorded media, such as, for example, video tape or video disks"), but does not specifically disclose erasing the key frames after the transfer.

Dimitrova teaches deleting the key frames from the first memory after the

transferring mechanism completes transfer of the key frames from the first memory to

the second memory (Col 3, lines 31-32 "the data structure is transferred from the

memory to the source tape." The examiner notes that the transfer of data or any other

object implies the movement of that data or object from a source to a destination, and

that the source no longer has the original data or object. If such a loss of the object

from the source were intended, the term "copy" would be appropriate to the movement

of data.)

As suggested by Yeo et al and taught by Dimitrova et al, continuing to store the

key frames in a first memory after their transfer to a second memory would be a waste

of memory, and their deletion would free processor and memory for other tasks that

may have more value to the viewer.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Yeo et al to include erasing the key frames from the first

memory after transferring the key frames to a second memory.

**Regarding claims 28 and 58**, Yeo et al disclose a system and method for

processing video source frames wherein the video frame extraction algorithm comprises

a content-based method of video frame extraction (Col 5, lines 15-16 "An alternative

method to select the candidate summary frame is based on content-based sampling of

video frames").

**Regarding claims 29 and 59**, Yeo et al disclose a system and method for

processing video source frames with two methods (Col 4, line 66 - Col 5, line 1 "A

candidate summary frame is taken from the video signal at regular time interval t" and

Col 5, lines 14-16 "An alternative method to select the candidate summary frame is

based on content-based sampling of video frames"), but does not disclose four distinct

methods of content-based key frame extraction.

Dimitrova et al teach a system and method for processing video source frames

wherein the content-based method includes a keyframe scene detection method (Col 5,

lines 27-40 describe "Method One"), a Method Two keyframe scene detection method

(Col 6, lines 32-49 describe "Method Two"), a Method Three keyframe scene detection

method (Col 7 lines 23-39 describe "Method Three"), and a Method Four keyframe

scene detection method (Col 8, lines 19-45 describe "Method Four").

As suggested by Yeo et al and taught by Dimitrova et al, a variety of key frame

extraction methods provides versatility and economy in storage and processing

requirements, enhancing the user's experience.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Yeo et al to include four methods of key frame scene

detection methods.

**Regarding claims 30 and 60**, Yeo et al disclose a system and method for

processing video source frames wherein the video frame extraction algorithm comprises

a content-independent method of video frame extraction (Col 4, line 66 - Col 5, line 1 "A

candidate summary frame is taken from the video signal at regular rime interval t").

4.      Claims 7 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Yeo et al and Dimitrova et al as applied to claims 1, 6, 31, and 36 above, and further in

view of Martino et al (6,473,095).

**Regarding claims 7 and 37**, Yeo et al suggest a special key frame with an

indication that it is the last key frame (Col 5, lines 4-5 "In a live-broadcast, summary

frames of past content can be selected." The most recent key frame is indicated by its

position on the screen as shown in Figs 8A, 8B, and 8C).

Martino et al teach a system and method for processing video source frames

wherein the recording mechanism records the indication in a special key frame that is

appended to the extracted key frames in the first memory (Col 4, lines 21-22 "A program

boundary is placed between $H_7$ and $H_6$ in accordance with box 209 [sic] of FIG. 2").

As suggested by Yeo et al and taught by Martino et al, indicating the final frame

in a set of extracted key frames would provide the user with information regarding how

recently the key frame review data can be accesses, further enhancing the use of the

key frame extraction and display system to him or her.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify Yeo et al to include an indication of the last extracted key

frame.

5.      Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James A. Fletcher whose telephone number is (703)

305-3464. The examiner can normally be reached on 7:45AM - 5:45PM M-Th, first

Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Andrew Faile can be reached at (703) 305-4380.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, DC 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only).**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office

whose telephone number is (703) 306-0377.

JAF
October 26, 2004

ANDREW FAILE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600